

Application Serial No: 09/876,372
In reply to Office Action of 19 Jun 2003

Attorney Docket No. 80002

AMENDMENTS TO THE CLAIMS

1. (Withdrawn): A method for producing an object comprising the steps of:

providing a fluid medium having a top surface capable of solidification when subjected to a prescribed stimulation;

mixing a solid reinforcing material with the fluid medium;

providing an acoustic field at said fluid medium surface;

manipulating said solid reinforcing material using said acoustic field;

stimulating a region of said fluid medium surface, said stimulating resulting in solidification of said fluid medium into a lamina having said solid reinforcing material therein; and

moving said lamina downward, such that said fluid medium exists as a liquid above the top surface of the most recently formed lamina.

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2. (Withdrawn): The method of claim 1 wherein the solid reinforcing material is selected from a group consisting of a fibrous material, a nonfibrous material and a mixture of a fibrous material and a nonfibrous material.
3. (Withdrawn): The method of claim 1 further comprising the step of adding additional solid reinforcing material to said fluid medium.
4. (Withdrawn): The method of claim 1 further comprising the step of stirring said fluid medium.
5. (Withdrawn): The method of claim 1 further comprising the step of moving said stimulated region.
6. (Withdrawn): The method of claim 5 further comprising the step of coordinating the step of moving said stimulated region, the step of moving said lamina downward, and the step of manipulating said solid reinforcing material.
7. (Withdrawn): The method of claim 1 wherein said acoustic field is provided as a standing wave field.
8. (Withdrawn): The method of claim 1 wherein said acoustic field is provided as a crawling wave field.

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9. (Currently Amended): A system for producing an object comprising:

a fluid medium having a surface, said fluid medium capable of transforming its physical state in response to a stimulation;

a solid reinforcing material provided in said fluid medium;

a support means immersed within said fluid medium, and progressively moveable away from said fluid medium surface;

a translational means joined to said support means capable of moving said support means with respect to said fluid medium surface;

a stimulation means capable of providing the stimulation altering the physical state of said fluid medium at said fluid medium surface; and

at least two acoustic ~~transducers~~ transducer arrays having a plurality of transducer elements positioned in said fluid medium and capable of providing an acoustic

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field at said fluid medium surface for manipulating
said reinforcing material; and

an acoustic controller joined to said at least two acoustic
transducer arrays to control the transducer elements
and the acoustic field by beamforming acoustic
radiation from the transducer elements.

10. (Canceled).

11. (Currently Amended): The system of claim ~~10~~ 9 further
comprising an object controller joined to said translational
means and said stimulation means, said object controller being
capable of positioning said stimulation means and said
translational means for controlling positioning of the
stimulation means with respect to the support means.

12. (Currently Amended): The A system of claim 11 for producing
an object comprising:

a fluid medium having a surface, said fluid medium capable
of transforming its physical state in response to a
stimulation;

a solid reinforcing material provided in said fluid medium;

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a support means immersed within said fluid medium, and
progressively moveable away from said fluid medium
surface;

a translational means joined to said support means capable
of moving said support means with respect to said
fluid medium surface;

a stimulation means capable of providing the stimulation
altering the physical state of said fluid medium at
said fluid medium surface;

at least two acoustic transducers positioned in said fluid
medium and capable of providing an acoustic field at
said fluid medium surface for manipulating said
reinforcing material;

an acoustic controller joined to said at least two acoustic
transducers for controlling the provided acoustic
field; and

an object controller joined to said translational means and
said stimulation means, said object controller being
capable of positioning said stimulation means and said

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translational means for controlling positioning of the
stimulation means with respect to the support means;

wherein said object controller is joined to said acoustic
controller for coordinating the position of the
provided acoustic field with the portion of the fluid
medium being subjected to said stimulation means.

13. (Currently Amended): The system of claim 12 further
comprising a vat having a plurality of walls containing said
fluid medium ~~therein~~ therein, said acoustic transducers being
positioned on at least two of said walls.

14. (Original): The system of claim 9 wherein the solid
reinforcing material is selected from a group consisting of a
fibrous material, a nonfibrous material and a mixture of a
fibrous material and a nonfibrous material.